# Cisco Aironet 350 Series — Access Points

## Product Overview

The Cisco Aironet 350 Series Access Point (AP) delivers a cost-effective, reliable, secure, and easily managed wireless LAN (WLAN) solution for enterprise, small, and medium-sized businesses. The Cisco Aironet 350 Series leads the industry in performance, range reliability, security and mobility. It is easy to deploy and manage and reduces overall cost of ownership.

## Key Features and Benefits

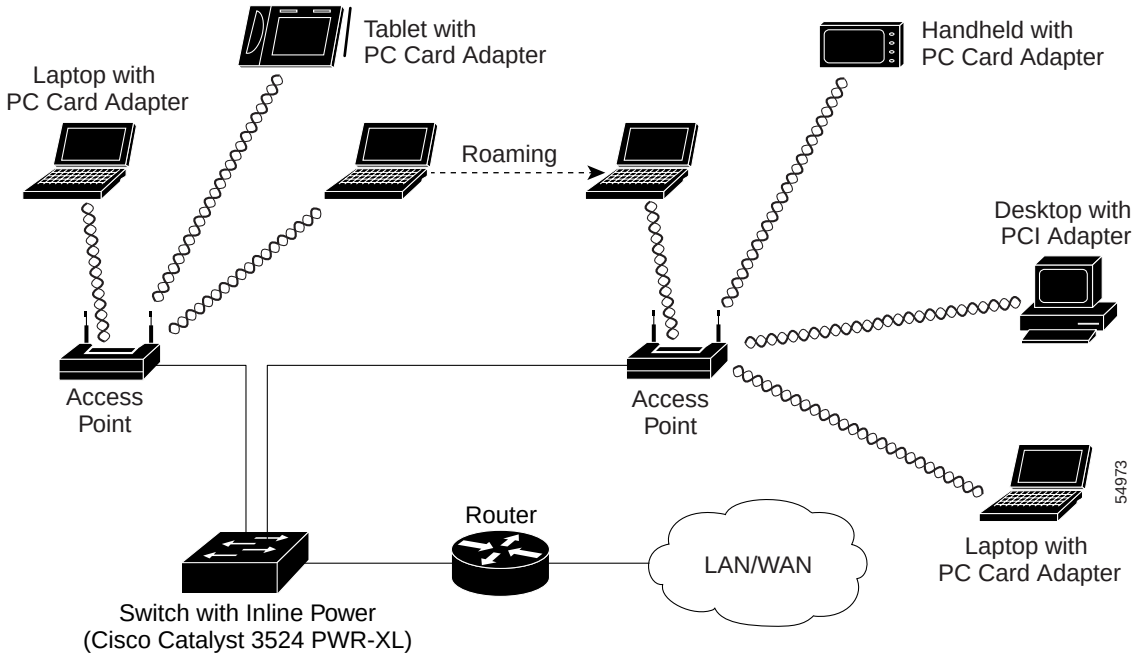
The Cisco Aironet 350 Series AP supports data rates of up to 11 Mbps, is IEEE 802.11b compliant, and offers key features that meet all enterprise requirements.

- Support for inline power over Ethernet, simplifying and reducing the total cost of installation and ownership
- High-performance 100 milliwatt (mW) radio design, with power management capabilities, delivering industry- leading throughput, range, and reliability
- Architecture that protects user investments by supporting future software features
- Available in two versions: standard and rugged.
  - The standard AP has a plastic case, standard operating temperature, and integrated antennas.
  - The rugged AP has an extended operating temperature range, external antenna connectors for auxiliary antennas, and a metal case for durability and plenum rating.

The Cisco Aironet 350 Series supports the following software features:

- IEEE 802.1x-based Extensible Authentication Protocol (EAP) services that provide centralized, user-based authentication and single-user, single-session encryption keys for hassle-free security administration and user-based privacy
- Automatic channel selection, Cisco Discovery Protocol (CDP), Dynamic Host Configuration Protocol (DHCP), and BOOTP services to simplify installation and management of WLAN infrastructures
- High-availability services, such as load balancing and hot-standby redundancy, for dependable performance
- Rich filtering options on both the Ethernet and radio side to provide performance and application tuning to meet specific business requirements

**Figure 26-1: An AP is the center point in an all-wireless network or a connection point between a wired and wireless network. Multiple APs can be placed throughout a facility to provide users equipped with WLAN adapters the ability to move freely throughout an extended area while maintaining uninterrupted access to all network resources.**




## Simplified Deployment and Reduced Total Cost of Installation and Ownership

The Cisco Aironet 350 Series AP includes a 10/100 Ethernet uplink for seamless integration with existing wired LANs. To minimize installation costs, the Cisco Aironet 350 Series AP draws its operating power from a powered Ethernet port. This line power configuration works with all Cisco line power-enabled devices such as Catalyst switches and line power patch panels. A line power injector, included with the product, can also be used to power the Cisco Aironet 350 Series AP.

## Industry-Leading WLAN Performance, Range, and Reliability

The 100-mW transmit power and receive sensitivity of the Cisco Aironet 350 Series AP leads the industry in range and reliability. Antenna diversity and superior delay spread (multipath) characteristics of the Cisco Aironet 350 Series deliver improved performance even in harsh environments such as warehouses, factories, and metal buildings.

Administrators can also configure the radio transmit power (1, 5, 20, 30, 50, 100 mW) on the Cisco Aironet 350 Series to meet the specific coverage requirements and minimize interference. In addition to an AP with two captured 2.2 dBi antennas, an AP with two RP-TNC connectors is offered for more challenging applications, where a broad portfolio of removable antennas can be used to further increase range and reliability.

## Investment Protection

To protect the users' investment, all Cisco Aironet 350 Series APs and bridges feature sufficient Flash memory to handle firmware upgrades.

## WLAN Software Serviced Needed for Business-Class Applications

### Centralized Security Architecture with Dynamic Session Key Management

Security is a primary concern for all WLAN installations. First-generation wireless security schemes based on service set identifier (SSID) and manual wired equivalent privacy (WEP) key management imposed significant administrative burdens upon the user. This burden precluded large-scale deployments. The Cisco solution leads the industry in providing scalable, standards-based, centralized security management that delivers dynamic single-session, single-user encryption keys integrated with the network logon.

The Cisco security architecture is based on the IEEE 802.1x standard for wireless networks. It is an extensible security framework that accommodates a variety of authentication and key management methods. Cisco Aironet APs work with EAP-enabled Remote Access Dial-In User Service (RADIUS) servers such as the Cisco Access Control Server 2000 Version 2.6 and EAP-enabled client adapters such as Cisco Aironet Series clients providing user-level authentication over an encrypted link. After successful mutual authentication with the RADIUS server, the user derives a dynamic WEP encryption key that uniquely encrypts that user's traffic over the air, ensuring security from both outside sources and inside network users. The access control server (ACS) RADIUS server uses Lightweight Directory Access Protocol (LDAP) or open database connectivity services (ODBC) to take advantage of the enterprise identity server database, allowing IT managers to instantly enable secure wireless security to all users.

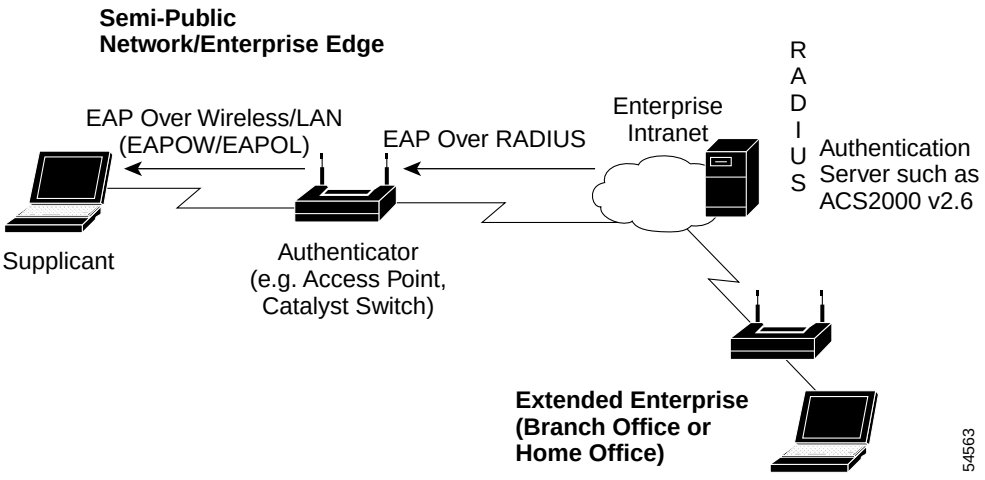
## Integrated Management for Configuration, Monitoring, and Troubleshooting

The Cisco Aironet Series offers simplified installation and configuration for rapid, anytime, anywhere installation, configuration, and management. The series supports Web-based management and Simple Network Management Protocol (SNMP) features to aid monitoring, troubleshooting, software download, and event logging.

The frequency agility option of the Cisco Aironet Series takes the guesswork out of channel configuration. In this mode, the AP automatically scans the area and selects the least-congested channel. The installer does not need to be aware of the settings of other Cisco APs in the coverage area.

For enterprise management, the Cisco Aironet Series provides support for Cisco Discovery Protocol (CDP) to enable auto discovery of Cisco Aironet APs and bridges using Cisco enterprise management applications such as CiscoWorks2000. Additionally, Cisco Aironet APs support standard SNMP Management Information Base (MIB) II, Cisco Aironet Series private MIB, and 802.11b MIB. Cisco Aironet Series APs can also be managed via the console or the Telnet interface.

**Figure 26-2: The 802.1x architecture implemented by Cisco is the first enterprise-ready security system for WLANs**



### Industry-Leading WLAN Performance and Scalability

All Cisco Aironet Series APs feature load-balancing services. Up to three APs, configured for different channels, can be colocated to achieve aggregate peak capacity of 33 Mbps for a single coverage area. Load-balancing policies based on the number of users, error rates, or signal strengths redistribute users to deliver more balanced collision domains, improving overall performance for installations covering a large number of users.

Broadcast and multicast filtering also enhance scalability. Filtering allows administrators to select the amount of such frames that enter the WLAN, conserving the shared bandwidth. Layer 3 IP Net and IP Socket filters are also provided.

### Reliability and High-Availability that Enterprise Installations Count On

For business-critical deployments, Cisco Aironet APs can be configured as a redundant hot standby to another AP in the same coverage area. The hot-standby continually monitors the primary AP on the same channel, and assumes its role in the rare case of a failure of the primary AP.

### Comprehensive WLAN Solution

Cisco offers a comprehensive WLAN solution including APs and bridges, a variety of client adapters supporting all popular operating systems, a broad portfolio of antennas, as well as security server and enterprise management applications.

Because it is a part of the Cisco Aironet Series, the Cisco Aironet 350 AP delivers the high level of security, manageability, scalability, and cost-effectiveness needed to deliver ubiquitous enterprise wireless services that extend user mobility and enhance overall productivity.

## Specifications

### Hardware

**Table 26-3: Technical Specifications for Cisco Aironet 350 Series Access Points**

| Description | Specification |
|---|---|
| Data Rates Supported | 1, 2, 5.5, and 11 Mbps |
| Network Standard | IEEE 802.11b |
| Uplink | Auto-sensing 10/100BaseT Ethernet |
| Frequency Band | 2.4 to 2.497 GHz |
| Network Architecture Types | Infrastructure |
| Wireless Medium | Direct Sequence Spread Spectrum (DSSS) |
| Media Access Protocol | Carrier sense multiple access with collision avoidance (CSMA/CA) |
| Modulation | DBPSK @1 Mbps<br>DQPSK @ 2 Mbps<br>CCK @ 5.5 and 11 Mbps |
| Operating Channels | North America: 11<br>ETSI: 13<br>Japan: 14 |
| Nonoverlapping Channels | Three |
| Receive Sensitivity | 1 Mbps: -94 dBm<br>2 Mbps: -91dBm<br>5.5 Mbps: -89 dBm<br>11 Mbps: -85 dBm |

| Description | Specification |
|---|---|
| Delay Spread | 1 Mbps: 500 ns<br>2 Mbps: 400 ns<br>5.5 Mbps: 300 ns<br>11 Mbps: 140 ns |
| Available Transmit Power Settings | 100 mW (20 dBm)<br>50 mW (17 dBm)<br>30 mW (15 dBm)<br>20 mW (13 dBm)<br>5 mW (7 dBm)<br>1 mW (0 dBm)<br>Maximum power setting will vary according to individual country regulations |
| Range (typical @ 100-mW transmit power setting with 2.2 dBi diversity dipole antenna) | Indoor:<br>130 ft (39.6m) @ 11 Mbps<br>350 ft (107m) @ 1 Mbps<br>Outdoor:<br>800 ft (244m) @ 11 Mbps<br>2000 ft (610m) @ 1 Mbps |
| Antenna | AIR-AP352E2C: Two nonremovable 2.2-dBi diversity dipole antennas included<br>AIR-AP352E2R-x-K9: Two RP-TNC connectors (antennas optional, none supplied with unit) |
| Encryption Key Length | 128-bit |
| Status Indicators | Three indicators on the top panel provide information concerning association status, operation, error/warning, firmware upgrade, configuration, network/modem, and radio status. |
| Automatic Configuration Support | BOOTP and DHCP |
| Remote Configuration Support | Telnet, HTTP, FTP, TFTP, and SNMP |
| Local Configuration | Direct console port (with supplied serial cable) |
| Input Power Requirements | 24VDC  10% to 60 VDC (Ethernet line power) |

**Table 26-4: Physical and Environmental Specifications for Cisco Aironet 350 Series Access Points**

| Description | Specification |
|---|---|
| Dimensions (H x W x D) | 1.45 x 6.30 x 4.72 in.<br>(3.7 x 16 x 12 cm) high |
| Weight | Standard version: 12.3 oz (350g)<br>Rugged version: 1.43 lbs. (.648 kg) |
| Operating Temperature | 32 to 122˚F (0 to 50˚C) |
| Relative Humidity | 10 to 90% (noncondensing) |

**Table 26-5: Regulatory Approvals for Cisco Aironet 350 Series Access Points**

| Description | Specification |
|---|---|
| Compliance | Operates license free under FCC Part 15 and complies as a Class B device; complies with DOC regulations; complies with ETS 300.328, FTZ 2100, and MPT 1349 standards |
| SNMP Compliance | MIB I and MIB II |
| Security | IEEE 802.1x (proposal includes EAP and RADIUS)<br>IEEE 802.11 WEP (Wired Equivalent Privacy) |

## Software

For software information on this product, see http://www.cisco.com/go/aironet/software

All software part descriptions and part numbers for Cisco products can be accessed using the online Cisco Pricing Tool at http://www.cisco.com/cgi-bin/order/pricing_root.pl

# Ordering Information

## Product Part Numbers

All part descriptions and part numbers for Cisco products can be accessed using the online Cisco Pricing Tool at http://www.cisco.com/cgi-bin/order/pricing_root.pl